The Newsletter of NOAA's National Weather Service in Green Bay, Wisconsin

www.weather.gov/grb

# Packerland Weather News

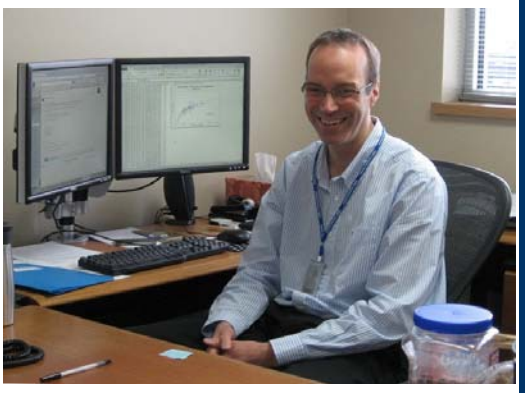
Volume 12, Issue 1 Winter 2014

*Inside this issue:*



## Matthew Lorentson Named NWS Green Bay MIC

*Linda S. Skowronski, Administrative Support Assistant*



Matthew Lorentson was selected as Meteorologist-in-Charge at the National Weather Service in Green Bay effective June 15. He replaces Gary Austin who retired in February.

Lorentson began his career with the National Weather Service as a Meteorologist Intern. Throughout his NWS career, he was promoted to various positions including Hydrologist, General Forecaster, Senior Forecaster, and Meteorologist-in-Charge of a Center Weather Service Unit. In 2009, he was promoted to a position at NWS Headquarters in Silver Spring, Maryland where he served as liaison to the Federal Aviation Administration. In his liaison role, Lorentson fostered the creation of a new weather unit at the FAA Air Traffic Control System Command Center and developed new methods of forecast performance verification.

Lorentson earned his Bachelor of Science Degree in Meteorology as well as Broadcast Communication from Valparaiso University. He also earned a Master of Business Administration degree from the University of Hawaii.

Welcome to the National Weather Service in Green Bay!

## A Message from the MIC

Greetings,

As a new arrival at the Green Bay National Weather Service Forecast Office, I can tell you I am thrilled to be in Northeast Wisconsin serving the needs of such a wonderful community and region. The weather is ever-changing here—as you know—and that makes our NWS work exciting and interesting. I have no doubt that the variable weather makes your personal and professional lives a little interesting, too!

Weather isn't the only ever-changing variable in our lives, of course—new technology, for one, is a cyclone of change that has pushed us all out into uncharted waters. For the weather forecasting sector, technology advancements have dramatically altered the way we go about our business. Only a few short years ago, a typical NWS forecast shift

(continues on page 2)

involved picking a computer model solution that seemed most reasonable and typing up a forecast based on that solution. Today, we rely increasingly on computer model ensembles and blends to populate a digital database of forecast elements, from which many different text products and graphics are automatically generated. This evolution of forecast automation allows NWS meteorologists to spend more and more time on what's most important: your needs and the translation of weather data to meets those needs—the communication of forecast information that our partners and users value and nothing less.

To draw an analogy, forecasting is not so much like playing an instrument anymore as it is like directing an orchestra. As we move forward in our role as conductors of technology, I welcome your thoughts on how we can "improve our sound" and enhance support to you.

Sincerely,
Matt

## How You Can Help Make the Community Weather-Ready

*Jeff Last, Warning Coordination Meteorologist*

Your organization can help make our country safer and more resilient to weather-related disasters by becoming a Weather-Ready Nation Ambassador. Weather-Ready Nation (WRN) is about building community resilience in the face of increasing vulnerability to extreme weather. This requires the participation and commitment of a vast nationwide network of partners, for example, hospitals, construction companies, utilities, emergency management agencies, and the media. That's why NOAA is looking for WRN Ambassadors.

**Why Become an Ambassador?**

WRN Ambassadors serve a pivotal role in affecting societal change – helping to build a nation that is ready, responsive, and resilient to the impacts of extreme weather. WRN Ambassadors are change agents and leaders of their communities. You will inspire others to be better informed and prepared – helping to minimize or even avoid the impacts of natural disasters.

**Building a Weather-Ready Nation Together**

Building a Weather-Ready Nation requires more than government alone. It requires the entire "weather enterprise" to provide information for better community, business, and personal decision making, and innovative partnerships across all segments of society. We must involve everyone in an effort to move people–and society–toward heeding warnings, taking action, and influencing their circles of family, friends, and social network to act appropriately. As a Weather-Ready Nation Ambassador, you will join with other government agencies, emergency managers and city planners, researchers, the media, the insurance industry, non-profit organizations, and many others to achieve the goal of saving lives and minimizing the impact of extreme weather on daily life.

We can all contribute to a better informed and prepared public, smarter business and community planning, and more resilient infrastructure.

**How to Become a Weather-Ready Nation Ambassador**

Any organization across all levels of government, businesses large and small, non-profit and non-governmental organizations, and academia can become a Weather-Ready Nation Ambassador. The Ambassador initiative is intended for organizations and designed to help serve the public by strengthening our national resilience against extreme weather events.

For more information, visit: **www.noaa.gov/wrn**

## Are You Ready for Another Wisconsin Winter?

The snow has begun already across the state, but it is never too late to put together a winter storm safety plan for you and your family:

- Make sure to check and winterize your vehicle.
- Have a NOAA Weather Radio with a battery back-up to keep up-to-date on the latest weather situation.
- Store extra food that requires no cooking in the event electricity is cut off.
- Make sure your emergency heating source, such as a fireplace or space heater, has proper ventilation.
- Check the weather forecast before leaving for extended periods.

When traveling, carry a winter storm survival kit that includes blankets, a flashlight with extra batteries, a first-aid kit, high-calorie non-perishable food, a shovel and knife, a windshield scraper and brush, and a cell phone. Keep your gas tank near full to avoid ice in the tank and fuel lines. If you must travel in a winter storm, avoid traveling alone. Check out these websites for more information:

**http://www.crh.noaa.gov/grb/?n=winter** OR **http://www.weather.gov/wintersafety**

It's also important to know the difference between a watch and a warning. A winter storm **watch** is issued when there is a potential for a winter storm during the next one to three days. The issuance of a watch doesn't always mean the area will be directly hit because of uncertainty in the path or timing, but it does mean that it's time to start planning just in case. A **warning** means a dangerous event is expected or occurring. Avoid unnecessary travel when winter warnings are in effect. Winter weather **advisories** are issued for events that are expected to be an inconvenience, but not life-threatening if proper precautions are taken.

## Wisconsin is Looking for Volunteer Rain and Snowfall Observers!

Rain and snowfall amounts can vary widely from location to location. We've all seen times where your house is dry, but your neighbor across the street has an afternoon downpour. While the National Weather Service has specialized equipment in the field to report rain and snow totals, they usually are too far apart to find these localized situations. That is why we need you to fill in these gaps. We are looking for volunteer Community Collaborative Rain, Hail, and Snow Network reporters, also known as CoCoRaHS. Your observations will be used by the National Weather Service as well as by media, researchers, farmers, and even members of your own community. You don't need to be a scientist to join; anyone with an interest in weather, from young to old, can become a CoCoRaHS observer. If you would like to volunteer, please follow the links below for more information on the program, training, necessary equipment, and how to join. Participation would be greatly appreciated and remember: **every drop counts**!

**www.cocorahs.org**

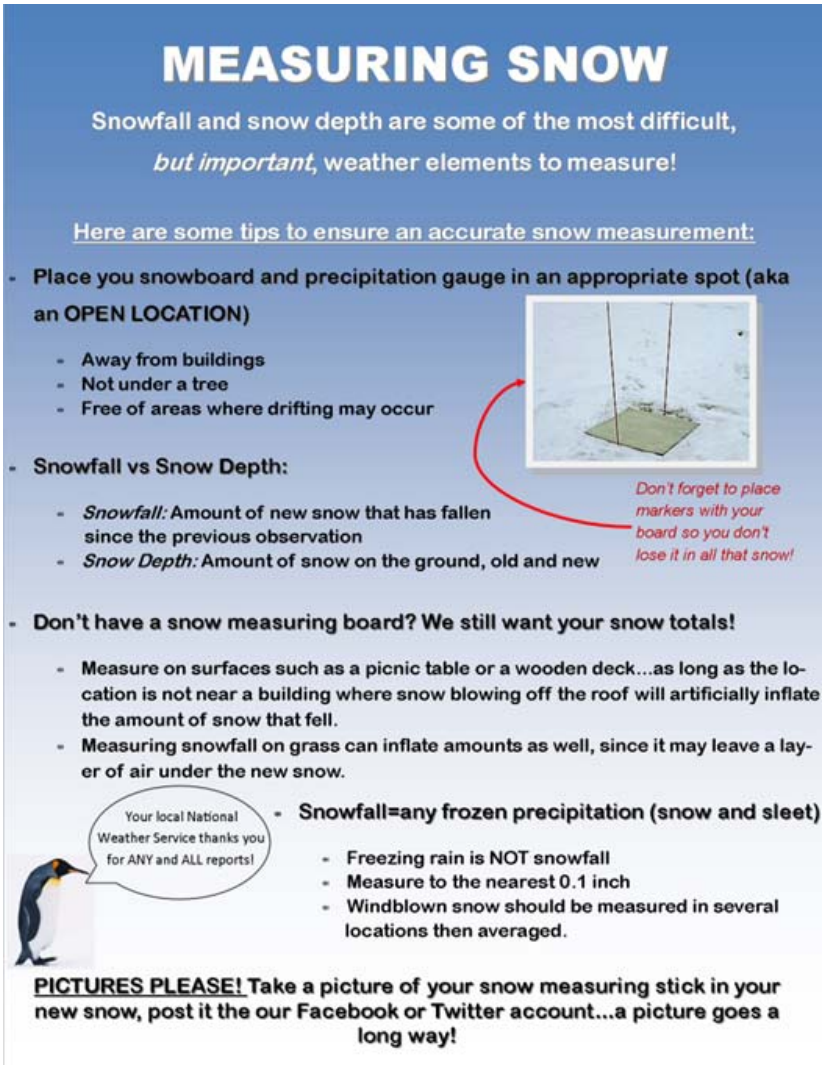
In addition to CoCoRaHS reporters, we are also looking for precipitation-type observers. No training or equipment is necessary! All you need to do is simply look out the window and observe what kind of precipitation (rain, snow, sleet, etc.) is falling in your backyard. Then, download the app for your mobile phone so you can report wherever you are located. While radars can detect what type of precipitation is occurring IN the clouds, we need you to let us know what is happening ON the ground. By submitting a precipitation-type report, you will alert local meteorologists to what is going on so we can give you the most up to date and accurate forecast as possible. For more information on the Precipitation Identification Near the Ground project (or PING), please go to: **http://www.nssl.noaa.gov/projects/ping/**

The National Weather Service and your local community thank you for all your input and please know that ever report is a valuable one.

## Storm Spotters: It's Time to Get Out the Yardsticks

Storm spotters are a valuable resource during winter storms. Your timely reports during and after snow, ice, and wind events provide important information to National Weather Service forecast staff, which results in more accurate warnings and advisories. Your accurate snowfall measurements will again be needed this season.

It is important to measure snowfall and snow depth in locations where the effects of blowing and drifting are minimized. Finding a good location where snow accumulates uniformly simplifies all other aspects of the observation and reduces opportunities for error. In open areas where windblown snow cannot be avoided, several measurements will be necessary to obtain an average depth—these measurements should not include the largest drifts. In heavily forested locations, find an exposed clearing in the trees. Measurements beneath trees are discouraged as large amounts of snow can accumulate on trees and never reach the ground. Avoid measuring directly on the grass; rather, use a snowboard or other hard surface away from structures. Make sure the snowboard is completely cleared after your final measurement. Snowfall should be reported in tenths of an inch (for example, 3.9 inches). Official spotters can call in their reports to the NWS at any time using the toll-free hotline. Storm spotters and the public can also report via our "Storm Report" link on the NWS Green Bay website: **www.weather.gov/grb**



# Weak El Niño May Impact Wisconsin's Weather This Winter

*Roy Eckberg, Forecaster*

There is a two in three chance that a weak El Niño will develop this winter and continue into early 2015. What is El Niño? El Niño occurs when water temperatures are warmer than normal across the equatorial waters of the Pacific Ocean (Figure 1) east of Indonesia, from five degrees north and south of the equator. Climate forecasters at the Climate Prediction Center (CPC) monitor the **Niño 3.4** region in the central Pacific Ocean. When water temperature departures from normal in the **Niño 3.4** region remain at or above +0.5C for several months, it is officially called an El Niño.

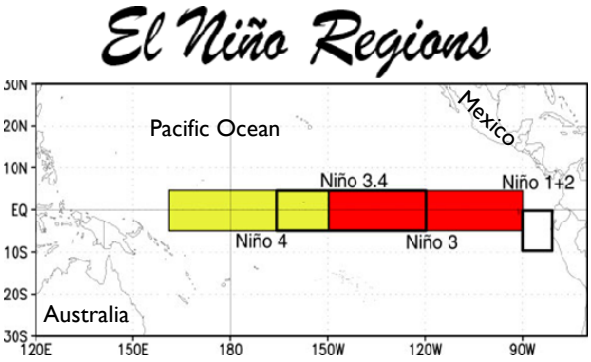



***Figure 1***

El Niño and La Niña (cooler waters than normal) can have significant impacts on the global weather, from thunderstorm activity in the Pacific Ocean to Atlantic hurricane activity during the summer and fall. The warmer or cooler than normal water temperatures of the Pacific Ocean can have big impacts on winter temperatures and precipitation/snowfall (Figure 2) across the United States. Figure 2 shows the winter temperature and precipitation impacts of a moderate to strong El Niño event.

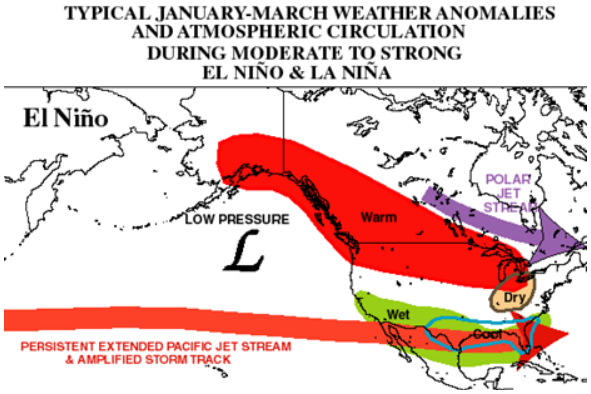



***Figure 2***

A majority of the climate models are indicating a weak El Niño event for the upcoming winter (2014-15). The official winter (December, January, February) outlook (Figure 3 & 4) from the Climate Prediction Center (CPC) is calling for equal chances of above, below or near normal temperatures across Wisconsin. The outlook is for a greater chance of below normal precipitation across eastern Wisconsin.

A preliminary look at past winters in Green Bay indicated a greater likelihood of above normal winter temperatures during moderate to strong El Niños. For weak El Niño events, there were several winters that ended up colder and drier than normal. During weak El Niño events, there may be other large-scale factors influencing Wisconsin's winter temperatures and precipitation/snowfall. An example is pressure patterns in the Arctic that at times can bring frequent intrusion of arctic air from Canada and offset the effects of El Niño. It should be noted that since January 2013, the area has generally been in a cooler than normal pattern during this period, so it would not be shocking if this winter ended up colder than normal.

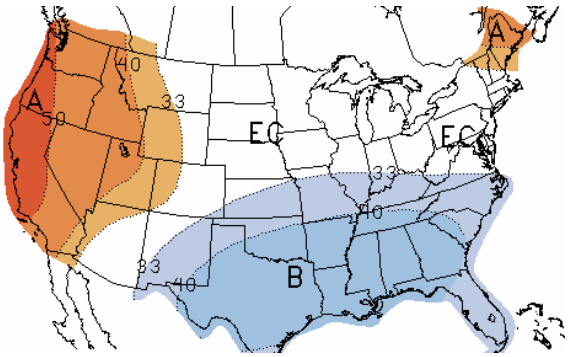



***Figure 3: Temperature Outlook Dec/Jan/Feb***

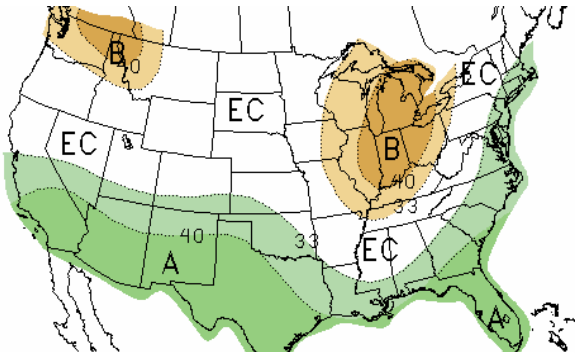



***Figure 4: Precipitation Outlook Dec/Jan/Feb***

## Early Season Ice Jams Cause Flooding

Ice jams may cause flooding on some rivers and creeks across northeast Wisconsin this winter and spring. The above normal river levels, combined with an unusually cold November, has already led to some ice jams this December. The most notable ice jam was along the Wolf River in Keshena, where flooding occurred. The National Weather Service advises that if you encounter a flooded roadway, turn around, don't drown! If you live along streams prone to ice jams, you should continue to closely monitor river levels and listen for possible flood statements or warnings. When a jam forms, water can rise several feet in just minutes compared to hours or days in a normal river flood. You may have little time to take action. Also, do not attempt to drive around barricades placed at flooded roads. It only takes as little as 2 feet of flowing water to float many vehicles. More than half of all flood-related fatalities are a result of individuals attempting to drive through a flooded roadway. If you see an ice jam, please report it to local law enforcement or to the National Weather Service in Green Bay.

**What is an ice jam?** An ice jam is a stationary accumulation of ice that restricts flow on rivers and streams. Cold snaps followed by a thaw and/or rain can lead to this potentially significant hazard. Snow melt, combined with rains can cause frozen rivers to swell, which breaks the ice layer on top of the river. The ice layer often breaks into large chunks, which float downstream and often pile up near narrow passages in the river as well as near bridges, dams and bends in the river. Please see the river ice guide on page 7 for photos and definitions of the different kinds of river ice formations. Most ice jams are minor, briefly producing a modest rise in the water upstream with a minor release of water when the ice breaks loose. But some ice jams can produce significant damming of the water producing flooding upstream, followed with the sudden release of a flash flood of water when the ice finally gives way. Below are examples of ice jams (below left) and what the flooding looked like in Keshena this December (below right).

*Minor ice jam on Duck Creek in Brown County in the spring of 2004.*


*Sandbagging in Keshena due to ice jam flooding on December 11, 2014.*


*Minor ice jam during breakup on the Spirit River in Lincoln County in the spring of 2004.*

*Ice jam flooding on the Wolf River in Keshena (Menominee County) on December 11, 2014.*

# River Ice Guide

*(courtesy of US Army Corps of Engineers)*


**Anchor ice**: Submerged ice attached or anchored to the river bed, regardless of the nature of its formation.
**Border ice**: Ice formed along and fastened to the shore. Border ice does not extend across the entire width of the river. Also called shore ice.
**Breakup jam**: Accumulation of broken ice pieces that restrict the flow of water; may contain frazil ice or remnants of freezeup jam.
**Candled ice**: Decayed sheet ice that assumes the appearance of thin vertical crystals shaped like candles.
**Frazil ice**: Fine, small, needle-like structures or thin, flat, circular plates of ice suspended in water. In rivers and lakes it is formed in supercooled, turbulent water.
**Freezeup jam**: Accumulation of frazil that restricts the flow of water; may contain some broken border-ice pieces.
**Pancake ice**: Circular, flat pieces composed of frazil and slush ice with a raised rim; the shape and rim are due to repeated collisions.
**Shear walls**: Ice left along shoreline when a freezeup or breakup jam fails and moves downstream.
**Sheet ice**: A smooth, continuous ice cover formed by freezing in the case of lake ice, or by the arrest and juxtaposition of ice floes in a single layer in the case of river ice.
**Slope change**: A change in the slope of the river. Typical examples occur where two rivers meet, and at the upstream end of a dam or reservoir pool.
**Slush ice**: A floating agglomeration of loosely packed frazil ice that remains separate or only slightly frozen together.

# Winter in July – Damaging Hail Storm in Central Door County

*Gene Brusky, Science and Operations Officer*

It looked like "winter in July" after a damaging hail storm struck parts of central Door County on the evening of July 14, 2014. Hail as large as ping pong balls caused significant crop damage in a nearly 1.5 mile wide and 3.2 mile long swath just south of the town of Institute. Institute is located approximately 7 miles northeast of Sturgeon Bay, Wisconsin. Apple, cherry, corn and winter wheat crops in this area sustained millions of dollars in damage.


Image 1

What made this hail storm particularly unusual and damaging was not the size of the hail, but the duration in which it fell. Hail up to one inch in diameter was reported to fall for nearly 33 minutes, accumulating up to 5 inches deep on some roads. In fact, snow plows were needed to clear roads in some areas! Despite overnight lows around 50 F, hail was still covering the ground the next morning as can be seen in Image 1.

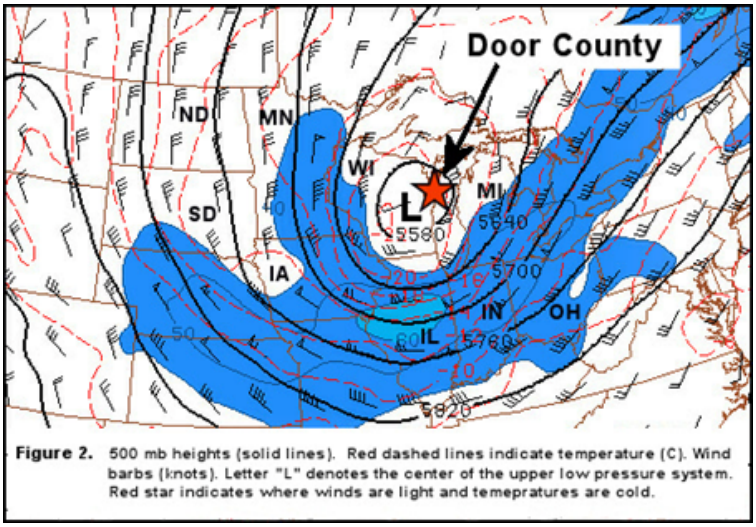
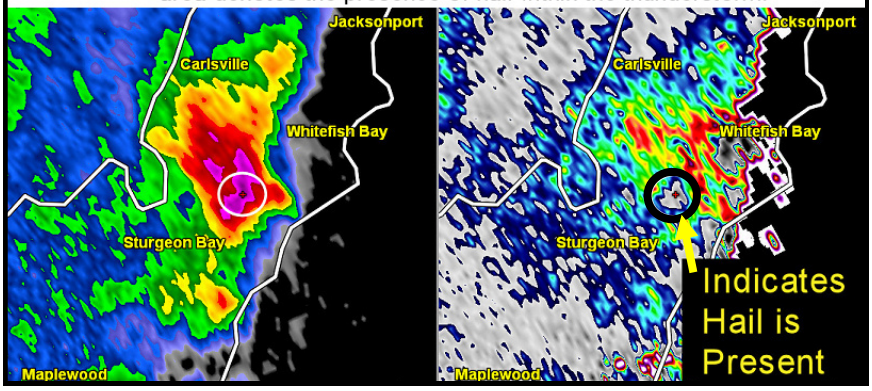


**Figure 2.** 500 mb heights (solid lines). Red dashed lines indicate temperature (C). Wind barbs (knots). Letter "L" denotes the center of the upper low pressure system. Red star indicates where winds are light and temepratures are cold.

The hail storm developed within cold air aloft beneath an unseasonably strong upper-level low pressure system that had moved over northeast Wisconsin overnight (Figure 2). In addition to the cold air aloft, the storm developed near the center of the upper-low where winds were relatively light. The combination of the cold air aloft and the slow movement of the storm lead to the unusually long duration of hail.

The dual polarization (dual pol) capability of the National Weather Service Green Bay Doppler radar was helpful in identifying the presence of hail in this storm as it moved between Sturgeon Bay and Whitefish Bay (Figure 3). The image on the left is the standard reflectivity product. It denotes the location and overall intensity of the targets in the storm. The image on the right is the dual pol component of the radar data. The dual pol product, used in concert with the reflectivity product, helps the forecaster identify the presence of hail in the storm. In this case, the circled area not only denotes the presence of large and highly reflective targets (Figure 3, left image), but also that the targets are largely composed of spherical hail stones (right image). The gray colored region within the circle denotes that the targets are nearly "circular" in shape (hail). In contrast, the bright red areas (Figure 3, right image) further north suggest large "pancake shaped" water droplets are also present. In fact, locations that did not experience copious hail, received over 3 inches of rainfall with the storm!

Figure 3. Reflectivity (left) and DP differential reflectivity (right). Circled area denotes the presence of hail within the thunderstorm.



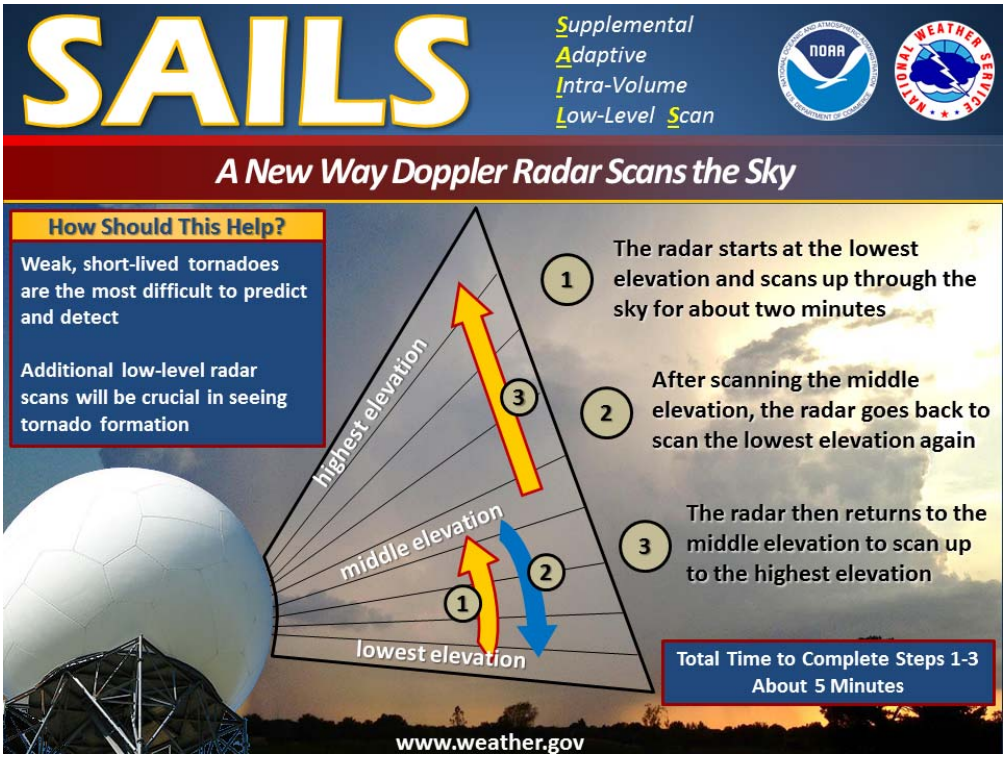
## Radar Software Upgraded to Better Assess Storm Potential

*Sean Luchs, Meteorologist Intern*

A recent software upgrade to the Green Bay Doppler radar has brought an exciting new capability that forecasters can use to better detect and anticipate severe weather. The new feature is called SAILS, an acronym for Supplemental Adaptive Intra-Volume Low-Level Scan. Previously, the radar scanned a set of elevation angles from its lowest angle, 0.5°, up to as high as 19.5° to complete what is known as a "volume scan". When SAILS is active, the radar antenna stops in the middle of a volume scan, and returns to the 0.5° angle for another scan before returning to higher angles and finishing the upper half of the volume scan.

SAILS is important because it effectively halves the amount of time a forecaster must wait to see information from the elevation angle that reveals what is happening nearest the ground. Thanks to other modifications, the addition of a second low-level scan does not significantly add to the time needed to complete a full volume scan. While having the latest information from the lowest elevation angle is important, a full volume scan is still needed to give forecasters a full, 3-D picture of a storm.

This new upgrade gives meteorologists a powerful tool when observing weather phenomena that can change dramatically in seconds, like circulations associated with tornadoes. The added information will help give forecasters the most up to date information needed when making split-second warning decisions. Obtaining more frequent information from the lowest levels of storms can help detect short-lived tornadoes that may form and dissipate before the radar can complete a full volume scan and return to the lowest level. It may also help reduce the false alarm rate by increasing a forecaster's confidence in deciding whether or not to issue a warning.




**DID YOU KNOW???**

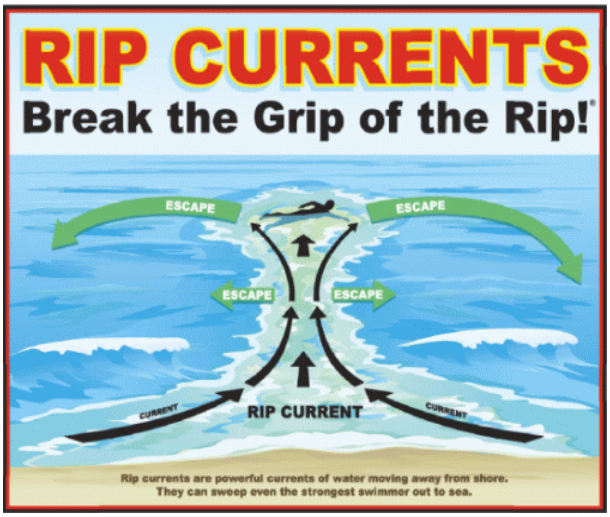
You can find the NWS Green Bay on Twitter at:
**twitter.com/NWSGreenBay**

## The New Beach Forecast and Hazards Program

*Mike Cellitti, Forecaster*

Last Spring, the National Weather Service (NWS) in Green Bay started issuing new weather messages to alert the public of possible hazards at beaches on Lake Michigan in east-central and northeast Wisconsin. Part of being safe on the beach means checking the wave and weather conditions before leaving the house: "Know Before You Go." These beach forecasts will typically be issued from Memorial Day weekend through Labor Day.

Waves are an under-rated swimming hazard at Great Lakes beaches. Studies have shown that once waves are greater than 3 to 5 feet, the propensity for swimming related accidents increases significantly. When waves reach this high, they can knock an adult off their feet. Additionally, wave periods on the Great Lakes are known for being short in duration (generally 3 to 5 second periods) as waves are largely wind driven. This means there is less time to recover after getting repeatedly struck by wave action, which can wear an inexperienced swimmer down.




Besides the hazards created by the waves themselves, certain weather conditions can generate strong currents that can be hazardous to inexperienced and experienced swimmers alike. When winds and waves are nearly perpendicular to the shoreline, rip currents can impact sandy beaches, or beaches with offshore sand bars. Rip currents develop when breaking waves pile water on the beach. Gravity then acts on the water, forcing the water to return into the lake, often in a path of least resistance, which is usually a break or a rip in a sand bar. The strength of the rip current is determined by the amount of incoming wave energy and also the tide level. In northeast Wisconsin, beaches more prone to rip currents are located south of Algoma. But wherever they occur, rip currents are difficult to spot and can occur in the best of weather. If you think you may be in a rip current, swim perpendicular to the shoreline to escape.

Other types of currents that can become hazardous include long-shore and structural currents. A long-shore current is a current that moves parallel to shore, driven by waves pushing water down the length of the beach in one direction. Long-shore currents can sweep swimmers and surfers into rip currents, piers, jetties, and other hazardous areas, or prevent swimmers from being able to keep their feet on the bottom, making it difficult to return to shore. With structural currents, winds and waves push water into the notch between the beach and the pier when coming in at an angle. Then the water is forced out along the structure as a strong current. Swimming along pier structures is a dangerous location on windy, high wave days.

The NWS in Green Bay will issue a daily "Recreational Beach Forecast" for northeast and east-central Wisconsin beaches on Lake Michigan from Rock Island to Manitowoc by 5 AM CDT so potential beach-goers have ample time to plan their day. This forecast will give information about that day's expected beach conditions including air and water temperature, wind speed and direction, and wave heights. In addition to the daily forecasts, each day will be assigned a "swim risk." The risk level is associated with waves and currents at the shore.

# New River Flood Warning Coverage

*Ashley Allen, Meteorologist Intern and Tom Helman, Senior Forecaster*

From 2013 to spring 2014, the Green Bay NWS hydrology team updated river flood warnings over northeast Wisconsin to switch from county-warning coverage to polygon or river-based warnings. Much like a polygon for a severe thunderstorm warning, the new river "polygons" (Figure 1) reduce the areal coverage of a river flood warning to the general shape of a particular river with river gage information. So rather than highlight the entire county with a flood warning, only the affected areas by the river will be warned. The polygons highlight a much more precise area around each of the 70 river points located throughout northeast Wisconsin. While the text information and impacts in the flood warnings have not changed, they now include the latitude and longitude coverage of the warned area (Figure 2). The new polygon method will ensure high impact information gets to only those who need to be concerned with river flooding.

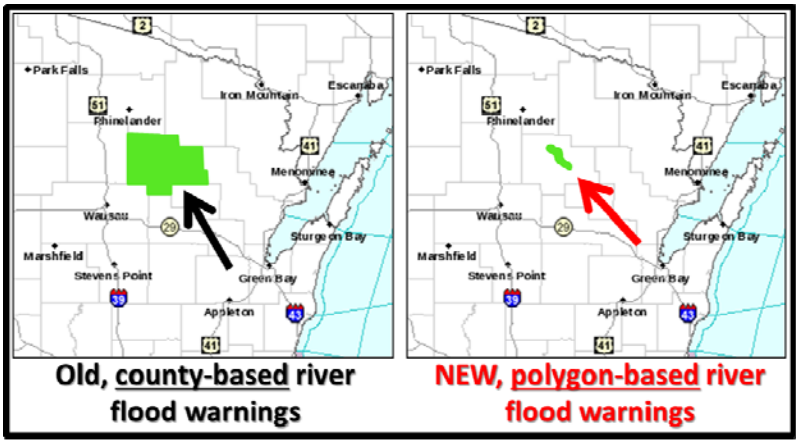



*Figure 1*

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WGUS43 KGRB 190614
FLWGRB

BULLETIN - IMMEDIATE BROADCAST REQUESTED
FLOOD WARNING
NATIONAL WEATHER SERVICE GREEN BAY WI
114 AM CDT THU JUN 19 2014

...THE NATIONAL WEATHER SERVICE IN GREEN BAY HAS ISSUED A FLOOD
WARNING FOR THE FOLLOWING RIVERS IN WISCONSIN...

  YELLOW RIVER AT BABCOCK AFFECTING WOOD COUNTY

PRECAUTIONARY/PREPAREDNESS ACTIONS...

PERSONS WITH INTERESTS ALONG THIS RIVER NEED TO PREPARE FOR FLOODING.
STAY TUNED FOR FURTHER UPDATES ON THIS FLOODING SITUATION.

&&

WIC141-192114-
/O.NEW.KGRB.FL.W.0015.140619T0614Z-140620T1000Z/
/BBCW3.1.ER.140619T0612Z.140619T1200Z.140619T1600Z.UU/
114 AM CDT THU JUN 19 2014

THE NATIONAL WEATHER SERVICE IN GREEN BAY HAS ISSUED A

* FLOOD WARNING FOR
  THE YELLOW RIVER AT BABCOCK.
* UNTIL LATE TONIGHT.
* AT 12:30 AM THURSDAY THE STAGE WAS 12.3 FEET.
* FLOOD STAGE IS 12.0 FEET.
* MINOR FLOODING IS OCCURRING AND MINOR FLOODING IS FORECAST.
* FORECAST...THE RIVER WILL CONTINUE RISING TO NEAR 13.0 FEET BY THIS
  MORNING. THE RIVER WILL FALL BELOW FLOOD STAGE BY THIS EVENING.
* AT 14.0 FEET...WIDESPREAD FLOODING IS OCCURRING IN WOODED LOWLAND
  AND AGRICULTURAL AREAS.

&&

LAT...LON 4441 9019 4441 9007 4425 9007 4425 9019

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Latitude/Longitude Information

*Figure 2*


**DID YOU KNOW???**

You can find the NWS Green Bay on Facebook at:

**www.facebook.com/NWSGreenBay**

# Recent Retirements

*Articles by Linda S. Skowronski, Administrative Support Assistant*

## Austin Retires from National Weather Service

Gary R. Austin retired from the National Weather Service on February 28 after over 32 years of service with the federal government.

Austin began his career with the federal government as a Physical Scientist with the U.S. Navy Research Laboratory in Groton, Connecticut. He spent 15 years with the Navy Lab working on projects related to submarines/sonar. As he always had an interest in meteorology, he decided to take a leave of absence from the government to pursue a degree in meteorology. He received his Master's Degree in Atmospheric Sciences from the University of Illinois at Urbana-Champaign.

Austin's first position with the National Weather Service was at the Duluth, Minnesota office where he was the Science and Operations Officer from 1995 to 1999. From July 1999 until his retirement, he held the position of Meteorologist-in-Charge at the Green Bay, Wisconsin office.

Austin and his wife Deborah plan to spend time together traveling and continuing to enjoy downhill skiing. We wish them good health and happiness in their retirement.

*Gary Austin (left) receives a federal government service plaque from Julie Adolphson in her capacity as Acting Deputy Director of the NWS Central Region at a retirement party in his honor.*

## Teri Egger Retires from National Weather Service

Teri Egger retired from the National Weather Service in Green Bay on September 6 after nearly 33 years of federal government service. At the time of her retirement, she held the position of Senior Meteorologist. Prior to arriving at NWS Green Bay, Egger was a meteorologist at the Sacramento, California forecast office.

In addition to her time with the National Weather Service, Egger proudly served as a meteorologist in the United States Navy, retiring at the rank of Commander. With her strong marine background, Egger assumed the role of marine weather program leader while at the NWS Green Bay, building relationships with our marine partners and the boating public.

Egger received her Bachelor's Degree in Meteorology from the University of Wisconsin at Madison.

Egger, her husband, and two daughters continue to reside in the Green Bay area. With rotating forecast shifts behind her, Egger hopes to spend more time with family and friends, and take advantage of classes for personal enrichment. Congratulations on a great career!

*Teri Egger at a retirement party in her honor.*

# Office Additions

*Articles by Linda S. Skowronski, Administrative Support Assistant*

## Meteorologist Intern Joins NWS Green Bay

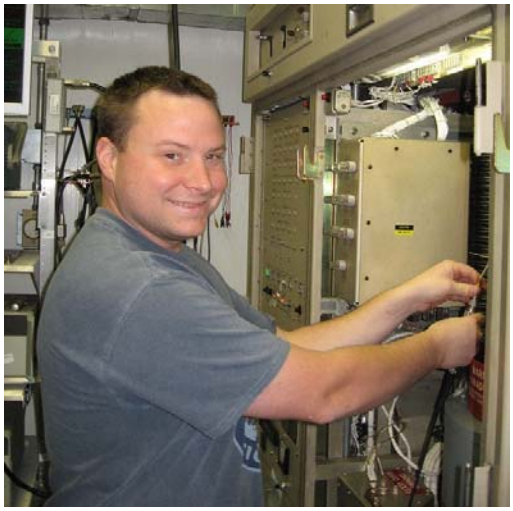
Sean Luchs joined the staff at the National Weather Service office in Green Bay, Wisconsin on July 30 as a Meteorologist Intern. While new to his current position, Luchs returns to the Green Bay office where he served as a Student Volunteer for two summers while attending college.

Luchs received his Bachelor's and Master's Degrees in Meteorology from the University of Oklahoma. Following graduation, he held the position of State Fire Meteorologist for the Florida Forest Service. With a strong background in fire weather, Luchs received certification as a wildland firefighter and Air Resource Advisor during his time with the Florida Forest Service.

Luchs, his wife, and son have settled into the Green Bay area. We wish him well as he begins his career with the National Weather Service.

*Sean Luchs in the NWS Green Bay forecast operations area.*

## Electronics Technician Joins Staff at NWS Green Bay



*Steven Louria inside the Radar Data Acquisition building at NWS Green Bay.*

Steven Louria accepted the position of Electronics Technician at the National Weather Service office in Green Bay and joined the staff on August 10.

Louria came to the National Weather Service from Casper, Wyoming where he was an Electronic Equipment Craftsman with the Western Area Power Administration, a division of the Department of Energy. Prior to this, he worked as a Network Field Engineer for U.S. Cellular.

A 5-year veteran of the United States Army, Louria was a member of the Army's 41st Signal Battalion where he worked on various microwave equipment. His enlistment included a tour of duty in Seoul, Korea.

Louria earned his Bachelor's Degree in Information Systems Management from the University of Maryland University College and is presently pursuing his Master's Degree through the University of Michigan.

Louria, his wife, and three children have moved to the Green Bay area. We welcome him to the National Weather Service and wish him well in his career.

## NWS Green Bay Participates in "NWS Week of Service"

In early October, the staff at the NWS in Green Bay participated in the "NWS Week of Service" which makes a concerted effort to reach out in our communities to help those in need. The NWS Green Bay staff collected and donated 272 food, toiletry, and pet items, weighing over 270 pounds. The food/toiletry items were delivered to Paul's Pantry and the pet items were delivered to Happily Ever After.



## NWS Green Bay Forecaster Receives Cline Award

*Linda S. Skowronski, Administrative Support Assistant*


Michael Gorczany received the 2014 Isaac M. Cline Award in the category of Meteorology. The award was presented at the local office level with winners having the potential to advance to the regional and national level.

Gorczany's nomination in the Meteorology category represented his dedicated work in the Storm Data Program at NWS Green Bay. His attention to detail and timeliness ensures that information on severe weather in the NWS Green Bay county warning area will be accurate and provide for a comprehensive database.

The prestigious award is named in honor of Isaac M. Cline, one of the most recognized employees in weather service history. Cline made numerous contributions to the mission of what was then called the Weather Bureau. His most noteworthy accomplishment was the actions he took during the Galveston hurricane of 1900, the deadliest weather event in U.S. history. The Cline Award is presented annually to NWS staff in ten categories of accomplishment.

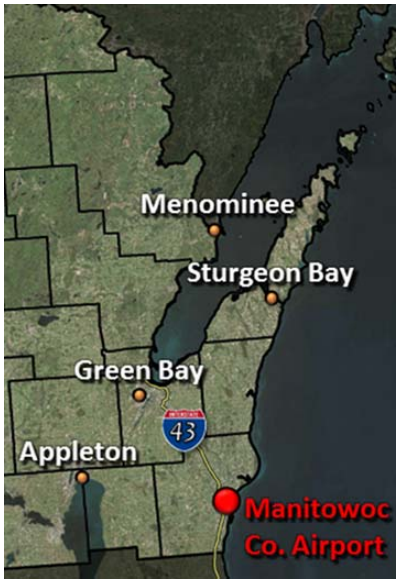
## NOAA and NWS at 2014 EAA AirVenture

NOAA and the National Weather Service staffed a booth at the EAA AirVenture in Oshkosh last summer. The highlight of the booth was a hurricane simulator (shown on the right) where people were able to experience the winds of a Category 1 hurricane. The NWS booth also featured information about NOAA and the NWS, aviation weather services, severe weather safety brochures, an interactive website display of current and forecast weather information, and real weather instruments, past and present. Every year, over 500,000 aviation enthusiasts visit AirVenture.

## New Aviation Weather Forecasts for Manitowoc

*Rich Mamrosh, Senior Forecaster*

The primary mission of the National Weather Service is the protection of life and property, whether on the land or in the air. As part of our effort to support safety and efficiency of air travel, the NWS began issuing aviation weather forecasts for the Manitowoc County Airport. These forecasts are issued four times a day and are updated as needed. They provide pilots with specific forecasts of wind speed and direction, type of precipitation, ceiling height, and visibility.




The Manitowoc County Airport opened in 1937, and serves much of the lakeshore between airports in Sturgeon Bay and Sheboygan. Around 65 aircraft are based at the airport, which has hosted popular airshows in the past, and once had commercial flights flown by North Central Airlines.

*Manitowoc Co. Airport*

## Phone System Changes

The National Weather Service in Green Bay has an updated phone system where you can get weather information. If you can't get to a computer and forgot your weather radio, you can call 920-494-2363 to access the following weather information:

| # | Weather Information |
|---|---|
| 1 | Green Bay and vicinity forecast |
| 2 | Wausau and vicinity forecast |
| 3 | Rhinelander and vicinity forecast |
| 4 | Current weather observations |
| 5 | Green Bay climate data |
| 6 | Nearshore marine forecast |
| 7 | NOAA all hazard weather radio |

## Cooperative Observer Program Awards!

| Name | Location | Years |
|---|---|---|
| Donald & Barbara Zuelke | Stratford | 30 |
| David Barcow | Green Bay Botanical Garden | 15 |

*Barbara Zuelke (left) from Statford receives a 30 year award from Observation Program Leader Scott Cultice (right).*


*Facility Supervisor Dave Barkow (right) from the Green Bay Botanical Garden receives a 15 year award from Observation Program Leader Scott Cultice (left).*


## NWS Green Bay Hosts Summer Student Volunteer

*Linda S. Skowronski, Administrative Support Assistant*

Andrew Courtney completed a term with the National Weather Service office in Green Bay as a Student Volunteer this past summer. In this position, Courtney worked with NWS staff observing and participating in day-to-day weather operations as well as assisting with special projects.

Courtney recently graduated from the University of Wisconsin at Whitewater with a Bachelor's Degree in Physical Geography. He is continuing to pursue his education with the goal of obtaining a Master's Degree in Meteorology. While at the University of Wisconsin-Whitewater, he received a grant to work on a research project entitled "Topographical Effect on Tornadoes in Wisconsin and Indiana".

*Andrew Courtney at a luncheon given him by NWS Green Bay staff*

The Student Volunteer Program allows students who are enrolled in an educational institution at least half-time to foster an interest in an occupation as well as provide career exploration and educational enrichment. Students must have written authorization from their educational institution to participate and, depending upon the institution, may receive college credit for their participation.

The staff at NWS Green Bay extends their thanks to Courtney for his help this summer and wishes him the best as he continues his education.

# Winter Word Search

D L O C P V S F E A R C T I C

F R E E Z I N G R A I N V S O

W C Y Z F E Y R N G T D O A Z

Z I N N O I T A L U M U C C A

S T N M B B E W G L M V C W A

Y N N T N Q A W L P Q O L W U

R D O O E R B I U Q U N I N B

E I K W N R H B L I Z Z A R D

T V C I S C S G I B S X W S Y

S H N E D T L T D C J N O L D

U G C N S O O R O K I Y N E N

L B I T O T I R C R S N S E I

B W Y M A F O O M P M R G T W

W Q Y A T W R R D U S T I N G

W H I T E O U T M P N K P N V

ACCUMULATION
ARCTIC
BLIZZARD
BLUSTERY
COLD
DRIFT
DUSTING
FREEZINGRAIN
GLOOMY
ICESTORM
ICING
SLEET
SNOWSTORM
SNOW
WARNING
WATCH
WHITEOUT
WINDCHILL
WINDY
WINTERSTORM

## DID YOU KNOW???

Each winter around 10,000 vehicle accidents occur in Wisconsin due to the adverse weather conditions affecting the roads.

Source: WI DOT

## DID YOU KNOW???

The winter of 2013-14 was the coldest winter in over 100 years of record-keeping across much of northeast Wisconsin.

# The Packerland Weather News

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